STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: February 26, 2016

FROM: Matt Urban
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Washington, 29761

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Maintenance for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on NH Route 31 over Shedd Brook. The proposed work consists of replacing the concrete bridge deck, repairing the concrete substructure/toewall, and placing rip-rap.

This project was reviewed at the August 19th 2015 Natural Resource Agency Coordination Meeting. The minutes from that meeting can be found on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/documents/August19FinalNATRESminutes.pdf

This project does not require mitigation.

The lead people to contact for this project are Steve Johnson, Assistant Administrator, Bureau of Bridge Maintenance (271-3668 or sjohnson@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

A payment voucher has been processed for this application (Voucher #427848) in the amount of $448.80.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru
Enclosures

cc:
BOE Original
Town of Washington (4 copies via certified mail)
Carol Henderson, NH Fish & Game
Edna Feighner, NH Division of Historic Resources (NHDOT Cultural Review Within)
Maria Tur, US Fish & Wildlife
Mark Kern, US Environmental Protection Agency
Michael Hicks, US Army Corp of Engineers

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THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
http://des.nh.gov/organization/divisions/water/wetlands

PERMIT APPLICATION

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME:
Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact)

2. PROJECT LOCATION:
Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **NH Rte. 31 over Shedd Brook** TOWN/CITY: **Washington**

TAX MAP: BLOCK: LOT: UNIT:

USGS TOPO MAP WATERBODY NAME: **Shedd Brook** ☐ NA STREAM WATERSHED SIZE: **2.2 mi2** ☐ NA

LOCATION COORDINATES (If known): **43`08'51.32" 072`02'34.86"** ☒ Latitude/Longitude
☐ UTM ☐ State Plane

3. PROJECT DESCRIPTION:
Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Rehab the bridge that carries NH Rte. 31 over Shedd Brook (174/146). The existing structure is concrete slab bridge that has a 10'-0" clear span and a 28'-4" deck width. Proposed work consists of replacing the concrete deck, repairing the concrete substructure and toewall, and placing riprap.

4. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

5. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:
See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **15** - **2029** .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and
date a copy of the application was sent to Local River Advisory Committee: Month: __ Day: __ Year: ____
☒ NA

6. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **Johnson, Steve W**

TRUST / COMPANY NAME: **NH Dept. of Transportation** | MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302**

EMAIL or FAX: **sjohnson@dot.state.nh.us** | PHONE: **603 271 3667**

ELECTRONIC COMMUNICATION: By initialing here: SW, I hereby authorize DES to communicate all matters relative to this application electronically

7. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME: | MAILING ADDRESS:

TOWN/CITY: | STATE: | ZIP CODE:

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

8. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Weatherbee, Anthony N** | COMPANY NAME: **NH Dept. of Transportation**

MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302**

EMAIL or FAX: **aweatherbee@dot.state.nh.us** | PHONE: **603-271-3667**

ELECTRONIC COMMUNICATION: By initialing here ANW, I hereby authorize DES to communicate all matters relative to this application electronically

9. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a copy of the application materials to the NH State Historic Preservation Officer.
8. I authorize DES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of DES correspondence. DES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
Steve W Johnson	STEVE W JOHNSON	2/07/2016

MUNICIPAL SIGNATURES

10. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨ Authorized Commission Signature	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. The Conservation Commission signature should be obtained prior to the submittal of the original application and four copies to the town/city clerk for mailing to the DES.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

11. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 1991), I hereby certify that the applicant has filed five application forms, five detailed plans, and five USGS location maps with the town/city indicated below and I have received and retained certified postal receipts (or copies) for all abutters identified by the applicant.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I(d):

1. For applications where "Expedited Review" is checked on page 1, accept the application for mailing only if the Conservation Commission signature has been sought;
2. Collect the postal receipts demonstrating that all abutters and the Local Advisory Committee were sent proper notice;
3. Collect any administrative fees, not to exceed $10 plus the cost of postage by certified mail (RSA 482-A:3,I).
4. IMMEDIATELY sign the original application and four copies in the signature space provided above;
5. Retain one copy of the application form, one complete set of attachments and the postal receipts demonstrating that all abutters and the Local River Advisory Committee were notified and make them reasonably accessible to the public;
6. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board in accordance with RSA 482-A:3, I; and
7. IMMEDIATELY send the ORIGINAL application form, one complete set of attachments and filing fee, by CERTIFIED MAIL to the NHDES Wetlands Bureau at the address indicated on page 1 of this application. (DO NOT HOLD FOR CONSERVATION COMMISSION SIGNATURE).

12. IMPACT AREA:
For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact
Permanent: impacts that will remain after the project is complete.
Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.
After-the-fact (ATF): work completed prior to receipt of this application by DES. Check box to indicate ATF.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland	41	☐ ATF	107	☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	467 / 63	☐ ATF	866 / 100	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	236 / 59	☐ ATF	527 / 65	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
TOTAL	744 / 122		1500 / 165	

13. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200
☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) **2244** sq. ft. X $0.20 = $ **448.80**

Temporary (seasonal) docking structure: _____ sq. ft. X $1.00 = $ _____

Permanent docking structure: _____ sq. ft. X $2.00 = $ _____

Projects proposing shoreline structures (including docks) add $200 = $ _____

Total = $ _____

The Application Fee is the above calculated Total or $200, whichever is greater = $ **448.80**

CONSTRUCTION SEQUENCE

1. Sandbags will be placed in the brook and the work zone will be dewatered. Stream flow will be maintained through a diversion pipe or through the natural channel.

2. Phase 1 of the concrete deck will be removed. The substructure and toewalls will be repaired. The deck will be replaced.

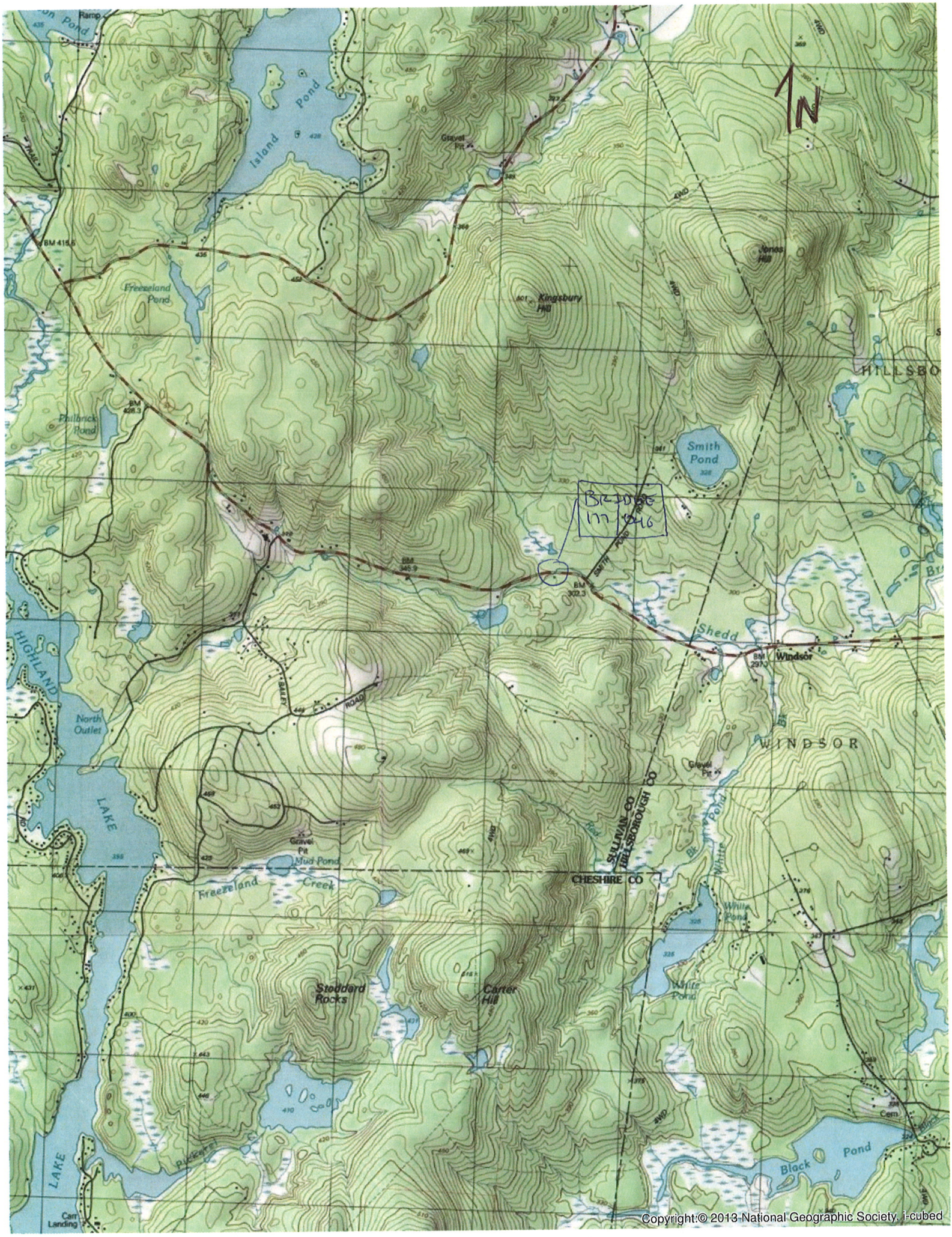
3. Phase 2 of the deck will be removed. The remaining portion of the substructure and toewalls will be repaired. The deck will be replaced.

4. Riprap will be placed in front of the abutments and wingwalls.

5. All dewatering devices will be removed and the site will be restored to its original quality.

Note:

Project will use and maintain DES Best Management Practices at all stages of construction.


N
Island Pond
Freezeland Pond
Kingsbury Hill
Jones Hill
Smith Pond
Philbrick Pond
SMITH ROAD
Shedd
Windsor
HIGHLAND LAKE
North Outlet
BAILEY ROAD
WINDSOR
Gravel Pit
Mud Pond
Freezeland Creek
CHESHIRE CO
SULLIVAN CO
HILLSBOROUGH CO
White Pond
Stoddard Rocks
Carter Hill
Black Pond
Cem
Carr Landing
BM 415.5
BM 426.3
BM 345.9
BM 302.3
BM 297.3
Ramp
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THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
http://des.nh.gov/organization/divisions/water/wetlands/index.htm
Permit Application Status: http://des.nh.gov/onestop/index.htm

PERMIT APPLICATION – ATTACHMENT A
MINOR & MAJOR 20 QUESTIONS

Env-Wt 302.04 Requirements for Application Evaluation – For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The existing structure is on the state redlist due to the poor condition of the substructure. The structure needs to be rehabilitated and if deterioration is allowed to progress, eventually the structure will become unstable and the road will need to be load posted or closed. Riprap is required to stabilize the substructure. It is necessary to impact jurisdictional areas to provide for the deck replacement, the substructure repair, the repair of the toewalls, for installing riprap, and for access. The impacts are for temporary construction access, the substructure facing, and for riprap.

2. That the alternative proposed by the applicant is the one with the least impact to the wetlands or surface waters on site.

The alternatives considered are as follows:

Replace the Entire Structure: Shedd Brook has a drainage area of 2.2 square miles which qualifies this stream as a Tier 3 Crossing. The bankfull width is 18'-4"; the required span for a replacement structure based on the NH Stream Crossing Guidelines for a new crossing is 24'-0". A structure of this size typically has an estimated cost of $500,000. The environmental impacts for this alternative are much greater because the existing bridge would have to be taken down and a new, larger structure would be built.

Rehabilitate the Existing Structure: This is the proposed alternative. The existing deck will be replaced in-kind and the substructure and toewalls will be repaired in place. This alternative proposes the least amount of environmental impacts because construction impacts are less for a rehab than for a replacement. A rehab can be done in place, and a larger structure would require significantly more permanent impacts. Riprap is required to stabilize the substructure which can be installed more effectively and with fewer impacts when the concrete deck is in the process of being removed. The proposed repair has an estimated cost of $175,000. This is the most cost-effective solution and also proposes the least amount of wetland impacts. Replacing the entire structure is not considered practicable since the structure can be repaired more cost effectively and with less environmental impacts.

In the August 19, 2015 Natural Resources Meeting it was asked if the existing toewalls could be replaced rather than expanded in order to reduce impacts in the channel. The Bureau of Bridge Maintenance agreed that this was possible and the existing toewalls will be replaced in-kind rather than expanded upon.

3. The type and classification of the wetlands involved.

R2UB1: Riverine, lower perennial, unconsolidated bottom, cobble gravel

PSS1E: Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

Bank

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

Shedd Brook flows into a nearby swamp/marsh wetland.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

Shedd Brook has not been identified as a rare surface water of the state.

6. The surface area of the wetlands that will be impacted.

1333ft^2 Riverine (866ft^2 temporary, 467ft^2 permanent)
148ft^2 Palustrine (107ft^2 temporary, 41ft^2 permanent)
763ft^2 Bank (527ft^2 temporary, 236ft^2 permanent)

7. The impact on plants, fish, and wildlife, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

a) There were no known rare or special concern species located in the project area via NHB.

b) There are no state or federally listed threatened or endangered species identified within the proposed project area identified by NHB. The USF&WS IPAC identified Northern Long-eared bat (NLEB). This project may require minimal tree clearing. The Department has determined that the project will not result in any prohibited take as described in the final 4(d) rule for NLEB. As for Northeastern bulrush, this species was not observed in the project area during field work and therefore not anticipated to be impacted as a result of the proposed work.

c) There are no species known to be at the extremities of their ranges located in Shedd Brook or the surrounding area.

d) Migratory fish and wildlife will be protected during this project under the direction of NH Fish and Game.

e) There are no exemplary natural communities identified within the project area.

f) There were no vernal pools identified and/or delineated within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

During construction, access to the nearby residents and/or commercial businesses will be maintained at all times. Access will not normally be disrupted; but when it is, access will be maintained with at least one lane. Shedd Brook is non-navigable water which makes it non-conducive to boaters. There are no recreational areas that have been identified in this area except for the possibility for fishing. During construction fishing activities from the banks of the brook will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The project will not significantly interfere with the aesthetic interests of the general public. The proposed improvements will be more pleasing to the eye than the structure in poor condition.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The project will not interfere with or obstruct public rights of passage or access. During construction at least one lane of alternating traffic will be maintained at all times. This will ensure access to all nearby businesses and residential homes in this area.

11. The impact upon the abutting pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to riprap a

stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel on the road. The riprap that is being installed will prevent a washout of the structure which will better protect abutting properties.

The project as proposed will not alter the chance of flooding on abutting properties.

12. The benefit of a project to the health, safety, and well-being of the general public.

The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc, for the general public.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and difference in the quality of water entering and exiting the site.

The proposed project will not significantly alter the existing surface water runoff or storm water discharge locations. Best Management Practices will be used to prevent any adverse effect to water quality during construction.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

Flooding: The structure can pass the 100 year storm event and this project will not change the hydraulic capacity.

Erosion: The riprap placed around the structure will prevent erosion and preserve the natural alignment and gradient of the stream channel.

Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project. Sedimentation in the open channel will not be caused as a result of this project.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

Surface waters will not be reflected or redirected as a result of this project. There are not enough surface waters for wave energy to be an issue.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alternations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage ownership of that wetland and the percentage of that ownership that would be impacted.

The work consists of the repair of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The value of the wetland as a habitat for living organisms will be unchanged. A function of the wetland is to carry water from a higher elevation to a lower elevation. This project will not interfere with that function.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

This project is not located in or near any Natural Landmarks listed on the National Register.

US Army Corps of Engineers®
New England District

New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		X
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	217 ft²	
2.7 What is the size of the proposed impervious surface area?	217 ft²	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	N/A	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		X
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		X

3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
5. Historic/Archaeological Resources		
For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP**		N/A

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law..

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE MAINTENANCE
7 Hazen Drive, PO Box 483, Concord, NH 03302-0095
Phone: (603) 271-3667 Fax: (603) 271-1588

WETLANDS PERMIT APPLICATION – ATTACHMENT C
Stream Crossing Requirements & Information

Env-Wt 904.09(a) – If the applicant believes that installing the structure specified in the applicable rule is not practicable then the applicant may propose an alternative design in accordance with this section.
1. Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as "*available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes*") *(question 2, Attachment A, Minor and Major 20 Questions)*;
Shedd Brook has a drainage area of 2.2 square miles which qualifies this stream as a Tier 3 Crossing. The required span based on the NH Stream Crossing Guidelines for a new crossing 24'-0". A structure of this size would typically cost approximately $500,000. Spending this much money on a structure that could be adequately preserved for approximately $175,000 would not be a practicable use of resources. There would be a significant increase in wetland impacts if a structure of this size were installed due to the additional footprint and for construction.
2. Please explain how the proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*. Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed…
…In accordance with the NH Stream Crossing Guidelines:
The NH Stream Crossing Guidelines do not mention maintenance to a structure in a Tier 3 watershed. **The proposed structure will match the existing slope and alignment.** **The bottom of the existing structure is currently a natural bottom and it will not be changed as a result of this project.** **Wildlife passage through the proposed structure will be no different than through the existing structure.** **The proposed structure will maintain the flow depths found in the existing structure.** **The proposed structure is expected to be able to pass the 100 year flood event.**
…With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing:
Water depths and velocities within the crossing at a variety of flows will be comparable to the existing depths and velocities. These flows are comparable to those found in the natural channel upstream and downstream of the stream crossing.
…To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage:
It is not possible to provide vegetated banks on both sides of the watercourse below the roadway, regardless of the type of structure installed. Wildlife passage for the proposed structure will be the same is it is with the existing structure.

...To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the function of the natural floodplain *(questions 14 and 15, Attachment A, Minor and Major 20 Questions)*;
The natural alignment and gradient of the stream channel will not be altered as a result of this project. The structure can pass the 100 year storm event and this project will not change the hydraulic capacity. **Surface waters will not be reflected or redirected as a result of this project.**
...To accommodate the 100-year frequency flood and to ensure that there is no increase in flood stages on abutting properties *(questions 11 and 14, Attachment A, Minor and Major 20 Questions)*:
The deck replacement, substructure repair and the riprap will not increase the potential of flooding. The structure can pass the 100 year storm event and this project will not change the hydraulic capacity. **The project as proposed will not alter the chance of flooding on abutting properties.**
...To simulate a natural stream channel:
The riprap will silt in overtime and will match the natural channel. A portion of the channel will not have riprap installed.
...So as not to alter sediment transport competence *(question 14, Attachment A, Minor and Major 20 Questions)*:
Nothing that will be a barrier to sediment transport will be installed in this project.
Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:
(a) Not be a barrier to sediment transport *(question 14, Attachment A, Minor and Major 20 Questions)*;
Nothing that will be a barrier to sediment transport will be installed in this project.
(b) Prevent the restriction of high flows and maintain existing low flows *(question 14, Attachment A, Minor and Major 20 Questions)*;
The structure rehab will not alter the existing high and low flows.
(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction *(question 7, Attachment A, Minor and Major 20 Questions)*;
The structure will provide the same degree of aquatic passage as the existing structure.
(d) Not cause an increase in the frequency of flooding or overtopping of banks *(question 14, Attachment A, Minor and Major 20 Questions)*;
The structure rehab and the riprap will not increase the potential of flooding. The structure can pass the 100 year storm event and this project will not change the hydraulic capacity. The project as proposed will not alter the chance of flooding on abutting properties.
(e) Preserve watercourse connectivity where it currently exists *(question 15, Attachment A, Minor and Major 20 Questions)*;
Connectivity will remain unchanged and will not be worsened with the proposed structure.
(f) Restore watercourse connectivity where...
...connectivity previously was disrupted as a result of human activity(ies) *(question 15, Attachment A, Minor and Major 20 Questions)*;
Connectivity will remain unchanged and will not be worsened with the proposed structure.

…restoration of connectivity will benefit aquatic life upstream or downstream of the crossing *(question 15, Attachment A, Minor and Major 20 Questions)*;
Aquatic life upstream and downstream will not be affected as a result of this project.
(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing *(question 14, Attachment A, Minor and Major 20 Questions)*;
The riprap placed around the structure will prevent erosion and preserve the natural alignment and gradient of the stream channel. **Nothing that will be a barrier to sediment transport will be installed in this project.**
(h) Not cause water quality degradation *(question 13, Attachment A, Minor and Major 20 Questions)*.
The project as proposed will not impact the quantity or quality of surface and/or groundwater at this site. Best Management Practices will be used to prevent any adverse effect to water quality during construction.

Hydraulic Data

Drainage Area – 2.2 sq mi

Q 100 = 462 cfs

Outlet Velocity = 4 fps at Q 100

At the 100 year flood, the proposed structure will pass all flow exiting the existing structure.

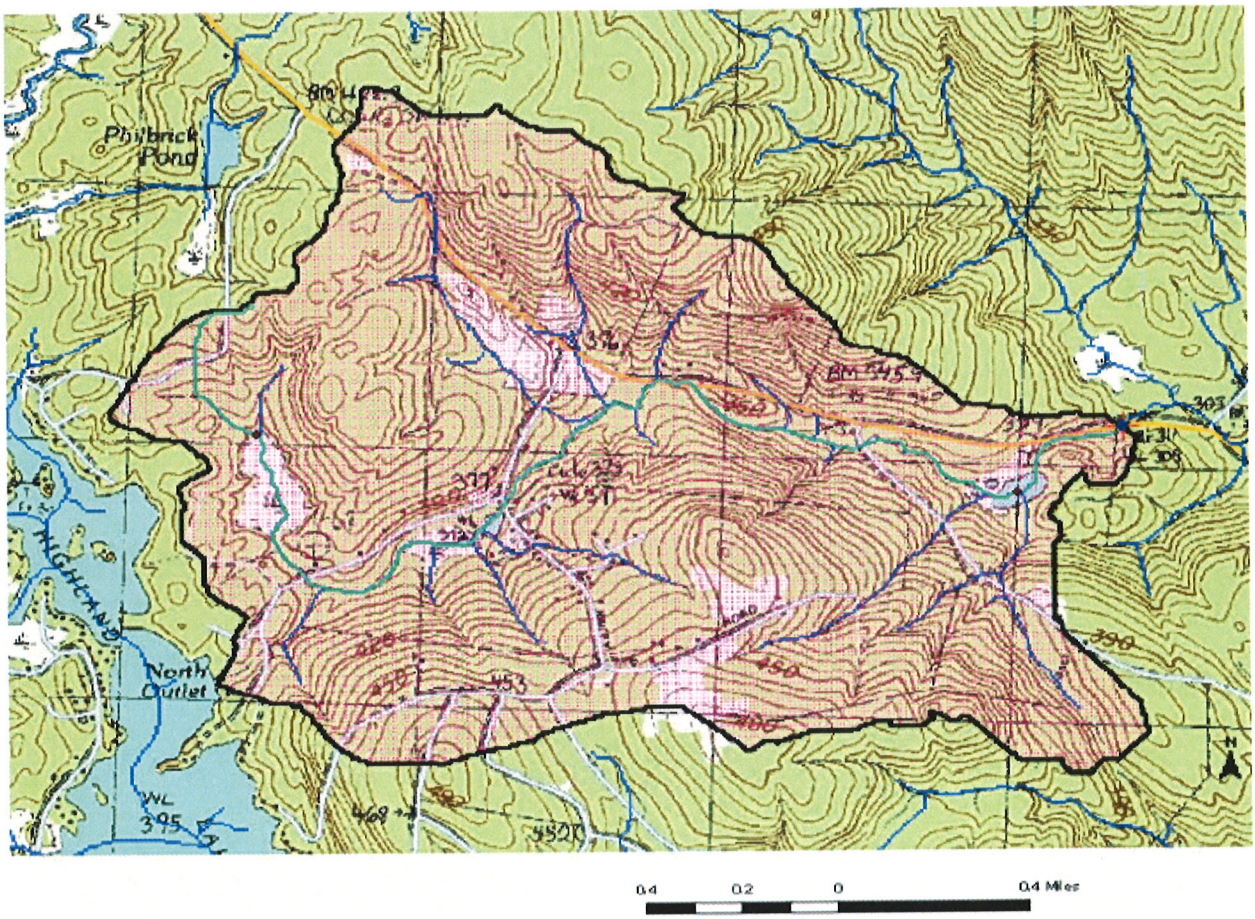


Figure 9: Watershed

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The rehabilitation of the bridge that carries NH Rte. 31 over Shedd Brook proposes the placement of stone fill within areas under the jurisdiction of the NH Wetlands Bureau and the US Army Corps of Engineers. The stone fill will be located in the channel and along the bank of the proposed structure as shown on the plans.

Pursuant to PART Wt 404 Criteria for Shoreline Stabilization, the following addresses each codified section of the Administrative Rules:

Wt 404.01 Least Intrusive Method

The riverbank stabilization treatment proposed is the least intrusive construction method necessary to minimize the disruption to the existing shorelines. The stone treatment can be reasonably constructed utilizing general highway construction methods.

Wt 404.02 Diversion of Water

Proposed roadway drainage will allow storm water run-off to be diverted so that it will flow over vegetated areas, insofar as possible, prior to entering Shedd Brook. This will minimize erosion of the shoreline.

Wt 404.03 Vegetative Stabilization

Natural vegetation will be left undisturbed to the maximum extent possible. The only locations being disturbed are the impacted areas on the plan for construction. All newly developed slopes and disturbed areas will have humus and seed applied for turf establishment, which will help stabilize the project area.

Wt 404.04 Rip-Rap

(a) Stone fill, as proposed, is shown on the attached plans to protect the channel and bank as necessary. Stable embankments are necessary to maintain the structural integrity of the bridge during all flow conditions.

(b) (1-5) The minimum and maximum stone size, the gradation, cross sections of the stone fill, proposed location, and other details have been provided on the attached plans. Bedding for the stone fill will consist of natural ground excavated to the proposed underside of the stone fill.

(b) (6) Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.

(b) (7) Stone fill is recommended for the limits shown on the attached plans to protect the banks from erosion during flood flows, from scour during all flows, and slopes greater than 2:1 have difficulty supporting vegetation.

(c) This project is not located adjacent to a great pond or water body where the state holds fee simple ownership.

(d) Stone fill is proposed to extend down to and adequately keyed into the channel bottom to prevent possible undermining of the slope.

(e) The enclosed plan has been stamped by a professional engineer.

New Hampshire Natural Heritage Bureau

To: Tony Weatherbee
7 Hazen Drive
Concord, NH 03302

Date: 6/17/2015

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 6/17/2015

NHB File ID: NHB15-2029 Applicant: Tony Weatherbee

Location: Tax Map(s)/Lot(s):
Washington

Project Description: Rehab the bridge that carries NH Rte. 31 over Shedd Brook (174/146). The existing structure is concrete slab bridge that has a 10'-0" clear span and a 28'-4" deck width. Proposed work consists of replacing the concrete deck, repairing the concrete substructure and toewall, and placing riprap.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

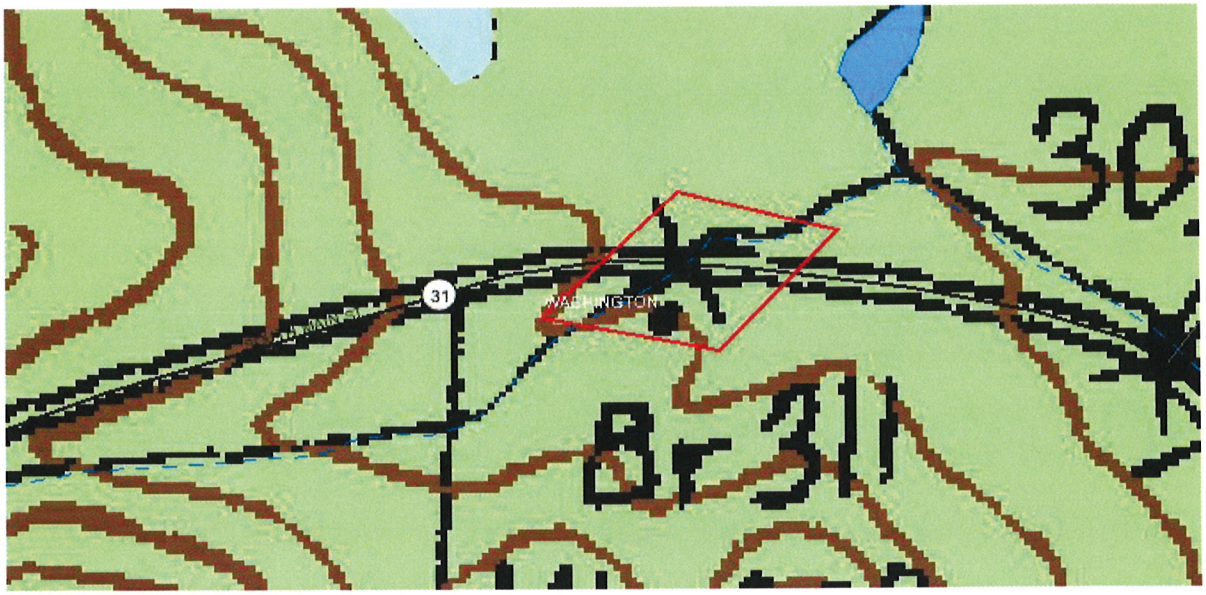
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 6/16/2016.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB15-2029



Department of Resources and Economic Development
Division of Forests and Lands
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DRED/NHB
172 Pembroke Road
Concord NH 03301

Project Washington 29761

Wetland Application – NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the enclosed Standard Dredge and Fill Application for potential impacts to historic properties.

Above Ground Review --- RT 31 over Shedd Brook

Known/approximate age of structure:

1928/1980 Concrete Slab Bridge 177/046; 10' span and 28'4" deck width; proposed replacement of concrete deck, repair concrete substructure and toewalls, place riprap in front of abutments and wingwalls. Some impacts for temporary construction access adjacent to structure set in filled embankment, substructure facing and riprap. Deck to be replaced in kind, and substructure and toewalls will be repaired in place. Structure will match existing slope and alignment. Natural alignment and gradient of stream channel will not be altered.

☒ No Potential to Cause Effect/No Concerns

Less than 50 years old

☐ Concerns:

Below Ground Review

Recorded Archaeological site: ☐Yes ☒No

Nearest Recorded Archaeological Site Name & Number: 27-HB-0348 Hartwell Saw Grist Mill

☐Pre-Contact ☒Post-Contact

Distance from Project Area:

4.842 miles (7.793 k) east of project area

☒ No Potential to Cause Effect/No Concerns

Impacts lie predominantly in previously impacted, filled, and/or eroded zones

☐ Concerns:

Reviewed by:

Sheila Charles

NHDOT Cultural Resources Staff

2/11/2016

Date:

Figure 1: NH Rte. 31 over structure looking towards Windsor (8/2013).

Figure 2: NH Rte. 31 over structure looking towards Goshen (8/2013).

Figure 3: Wingwall to be faced (8/2013).

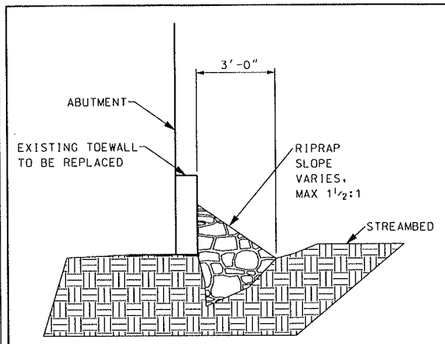
Figure 4: Substructure and toewalls to be repaired (8/2013).

Figure 5: Concrete deck to be replaced (8/2013).

Figure 6: Looking downstream from structure (8/2013).

Figure 7: Looking upstream (8/2013).

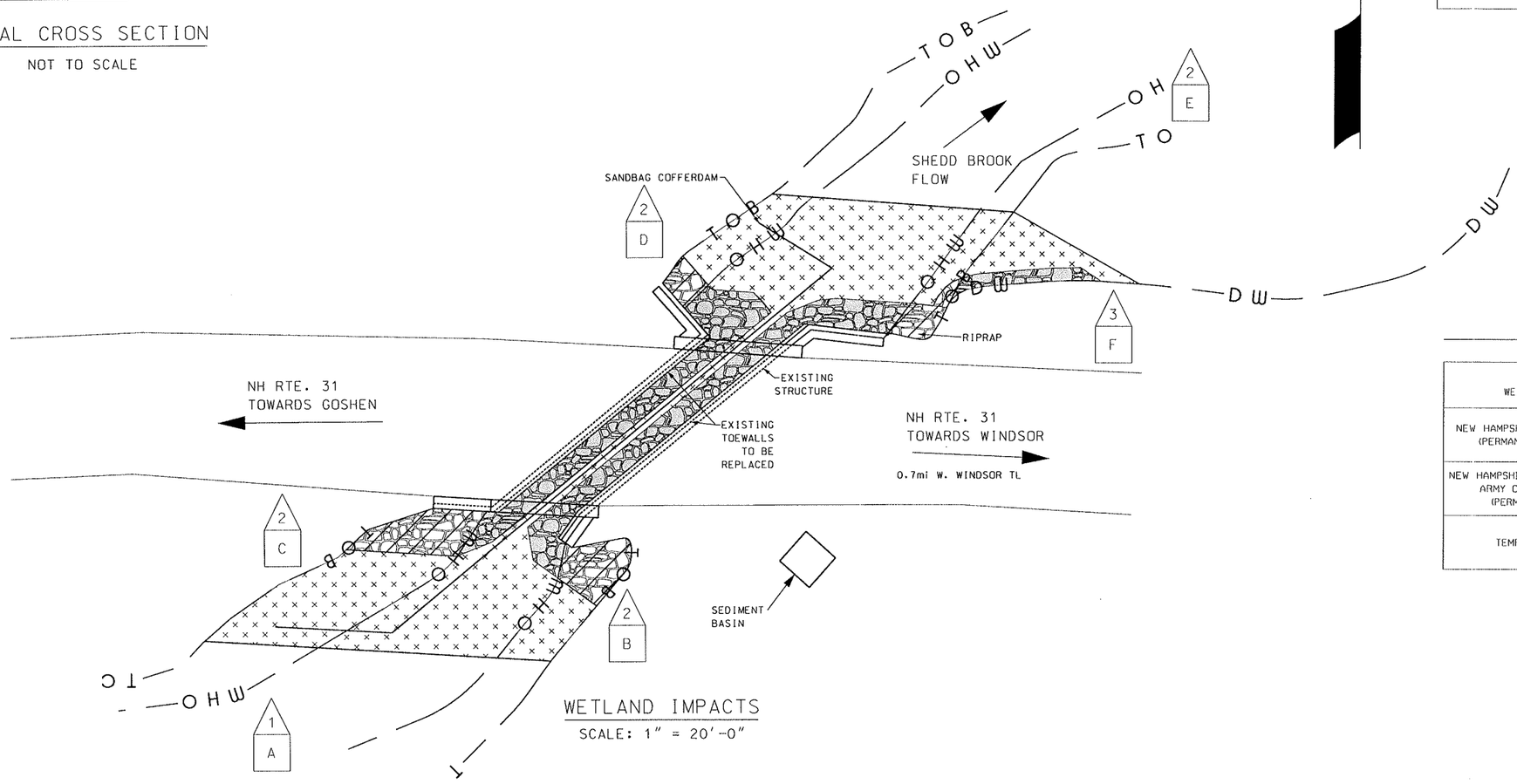
Figure 8: Elevation of structure looking upstream (8/2013).



TYPICAL CROSS SECTION

NOT TO SCALE

RIPRAP GRADATION
D15 < 10"
D50 < 14"
D100 < 24"



WETLAND IMPACTS

SCALE: 1" = 20'-0"

N

WETLAND IMPACT SUMMARY					
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA		
			PERMANENT IMPACTS		TEMPORARY IMPACTS
			N.H.W.B. (NON-WETLAND) SF	N.H.W.B. & A.C.O.E. (WETLAND) SF	SF
1	R2UB1	A		467	866
2	BANK	B	74		86
2	BANK	C	97		281
2	BANK	D	27		95
2	BANK	E	38		65
3	PSS1E	F		41	107
		G			
		H			
		I			

PERMANENT IMPACTS: 744 SF
TEMPORARY IMPACTS: 1500 SF

TOTAL IMPACTS: 2244 SF

WETLAND CLASSIFICATION CODES	
R2UB2	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, SAND
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
BANK	

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

△ # WETLAND DESIGNATION NUMBER

WETLAND IMPACT LOCATION

◇ # WETLAND MITIGATION AREA

MITIGATION

10 0 10 20
SCALE IN FEET

THE STATE OF NEW HAMPSHIRE
STEVE W. JOHNSON No. 7305 LICENSED PROFESSIONAL ENGINEER
2/7/16

WETLANDS DELINEATED BY MATT URBAN ON 10/2014

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN WASHINGTON BRIDGE NO. 177/046 STATE PROJECT 29761

LOCATION RTE. 31 OVER SHEDD BROOK

WETLAND IMPACTS

BRIDGE SHEET 1 OF 1

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
			DESIGNED	ANW	6/17/15
			DRAWN	ANW	6/17/15
			QUANTITIES		
			ISSUE DATE		
			REV. DATE		

CHECKED
CHECKED
CHECKED

FILE NUMBER WASHINGTON 177/046

SHEET SCALE: AS NOTED

FISCAL YEAR 2016 | CREW 07 | SHEET NO. 1 | TOTAL SHEETS 1